

Demand One priority - 8/3/05
Demand One TRANSFER 9/3/05

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

Submit comments 7/3/05
ART 19 - 8/3/05
Suff-05 - 9/3/05

JUN 07 2005

PCT

To:
JOHN K. FITZGERALD
FULWIDER PATTON LEE & UTECHT, LLP
HOWARD HUGHES CENTER
6060 CENTER DRIVE, TENTH FLOOR
LOS ANGELES, CA 90045

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL SEARCH REPORT AND
THE WRITTEN OPINION OF THE INTERNATIONAL
SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

Date of mailing
(day/month/year) 03 JUN 2005

Applicant's or agent's file reference
STADM-69490

FOR FURTHER ACTION See paragraphs 1 and 4 below

International application No.
PCT/US04/32090

International filing date
(day/month/year) 01 October 2004 (01.10.2004)

Applicant
SABEUS PHOTONICS, INC.

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.
- Filing of amendments and statement under Article 19:**
The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):
- When?** The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.
- Where?** Directly to the International Bureau of WIPO, 34 chemin des Colombettes
1211 Geneva 20, Switzerland, Facsimile No.: +41 22 740 14 35
- For more detailed instructions, see the notes on the accompanying sheet.
2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.
3. ☐ With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:
- ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.
- ☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. Reminders

Shortly after the expiration of 18 months from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

The applicant may submit comments on an informal basis on the written opinion of the International Searching Authority to the International Bureau. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established. These comments would also be made available to the public but not before the expiration of 30 months from the priority date.

Within 19 months from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later); otherwise, the applicant must, within 20 months from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of 30 months (or later) will apply even if no demand is filed within 19 months.

See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide*, Volume II, National Chapters and the WIPO Internet site.

Name and mailing address of the ISA/ US
Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
Facsimile No. (703) 305-3230

Authorized officer

Gregory J Toatley
DEBORAH A. THOMAS
PARALEGAL SPECIALIST
Telephone No. 703-308-0935

(See notes on accompanying sheet)

Form PCT/ISA/220 (January 2004)

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PATENT COOPERATION TREATY

PCT

JUN 07 2005

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference STADM-69490	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/US04/32090	International filing date (<i>day/month/year</i>) 01 October 2004 (01.10.2004)	(Earliest) Priority Date (<i>day/month/year</i>) 03 October 2003 (03.10.2003)
Applicant SABEUS PHOTONICS, INC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.



It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the Report

- a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.



The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. ☐

With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2. ☐ Certain claims were found unsearchable (See Box No. II)

3. ☐ Unity of invention is lacking (See Box No. III)

4. With regard to the title,



the text is approved as submitted by the applicant.



the text has been established by this Authority to read as follows:

5. With regard to the abstract,



the text is approved as submitted by the applicant.



the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

- a. the figure of the drawings to be published with the abstract is Figure No. 3



as suggested by the applicant.



as selected by this Authority, because the applicant failed to suggest a figure.



as selected by this Authority, because this figure better characterizes the invention.

- b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/32090

Box IV TEXT OF THE ABSTRACT (Continuation of Item 5 of the first sheet)

The technical features mentioned in the abstract do not include a reference sign between parentheses (PCT Rule 8.1(d)).

NEW ABSTRACT

A pressure sensor (100) and system for measuring pressure changes, especially in harsh environments, is described. The pressure sensor has a Fabry-Perot optical cavity formed within a tube (115) with a partial reflective mirror (130) provided by an end of an optical fiber (105) and a reflective mirror (135) provided by an end of a plug (120), with a gap (125) formed between. The pressure sensor may be disposed within a sensing chamber of a housing having an opening into the environment to be monitored. Alternatively, an isolator means may be used to isolate the sensor from the environment while communicating pressure changes to the sensing chamber. In another embodiment, the sensing chamber is filled with a compressible non-flowing material.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/32090

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G01B 9/02

US CL : 356/480

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 356/480, 35.5, 519; 372/32

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
NONE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,301,001 (MURPHY et al) 05 April 1994 (05.04.1994), Fig. 2 and corresponding passages.	1-32
X	US 5,907,403 (ANDREWS et al) 25 May 1999 (25.05.1999) Figs. 2a, 2b and corresponding passages	1-32
X	US 6,069,686 (WANG et al) 30 May 2000 (30.05.2000) Figs. 2, 4, 5 and corresponding passages	1-32
X	US 6,567,173 B1 (JOHANNESSEN) 20 May 2003 (20.05.2003) Figs. 1-5 and corresponding passages	1-32
A	US 6,141,087 (VIEL) 31 October 2000 (31.10.2000)	1-32

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

10 March 2005 (10.03.2005)

Date of mailing of the international search report

03 JUN 2005

Name and mailing address of the ISA/US

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DEBORAH A. THOMAS
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DUT

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:
JOHN K. FITZGERALD
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LOS ANGELES, CA 90045

PCT

JUN 07 2005

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Applicant's or agent's file reference STADM-69490		Date of mailing (day/month/year) 03 JUN 2005 FOR FURTHER ACTION See paragraph 2 below
International application No. PCT/US04/32090	International filing date (day/month/year) 01 October 2004 (01.10.2004)	Priority date (day/month/year) 03 October 2003 (03.10.2003)
International Patent Classification (IPC) or both national classification and IPC IPC(7): G01B 9/02 and US Cl.: 356/480		
Applicant SABEUS PHOTONICS, INC.		

1. This opinion contains indications relating to the following items:

- | | | |
|-------------------------------------|--------------|--|
| <input checked="" type="checkbox"/> | Box No. I | Basis of the opinion |
| <input type="checkbox"/> | Box No. II | Priority |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> | Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> | Box No. VI | Certain documents cited |
| <input type="checkbox"/> | Box No. VII | Certain defects in the international application |
| <input type="checkbox"/> | Box No. VIII | Certain observations on the international application |

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/ US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230	Authorized officer Gregory J Toatley Telephone No. 703-308-0935 <div style="text-align: right;"> DEBORAH A. THOMAS PARALEGAL SPECIALIST GROUP 1300 <i>DWA</i> </div>
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Form PCT/ISA/237 (cover sheet) (January 2004)

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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/US04/32090

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

- ☐ This opinion has been established on the basis of a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

- ☐ a sequence listing
☐ table(s) related to the sequence listing

b. format of material

- ☐ in written format
☐ in computer readable form

c. time of filing/furnishing

- ☐ contained in international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

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WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US04/32090

Box No. V Reasoned statement under Rule 43 bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims <u>NONE</u>	YES
	Claims <u>NONE</u>	NO
Inventive step (IS)	Claims <u>NONE</u>	YES
	Claims <u>NONE</u>	NO
Industrial applicability (IA)	Claims <u>1-32</u>	YES
	Claims <u>NONE</u>	NO

2. Citations and explanations:

Claims 1-2, 6-11, 14, 17-22, and 27-33 lack novelty under PCT Article 33(2) as being anticipated by Wang et al (6,069,686).

Regarding claims 1 and 20, Wang (Fig 2) discloses a device for sensing the pressure of an environment comprising an optical fiber 210 extending through a capillary that is disposed inside tube 230, with a plug 220, with the optical lead-in fiber inserted inside the tube leaving an air gap 260 between the plug and the optical fiber.

As for claim 2, the fiber is fused to the capillary, which is thermally fused to the tube at 240, with the plug fused to the tube at 250.

As for claims 6-8, see Col. 4, lines 51-62.

As for claims 9-11, end 221 of the plug is totally reflecting.

As for claims 14 and 33, end 211 is flat.

As for claim 17, the fiber is single mode (Col. 4, line 10).

As for claim 18, the fiber having a core and a cladding layer would be inherent to the construction of the fiber.

As for claim 19, the device is constructed to provide temperature compensation (Col. 2, lines 39-40).

As for claims 21-22, the material in the gap can be a fluid (Col. 4, lines 56-65).

Regarding claim 27, Wang (Fig. 1) discloses a pressure sensing system comprising a light source 110, a coupler 130, a pressure sensor 150, and analyzing means (not shown in the Fig but see Col. 4, lines 40-44) to analyze the signals from photodetectors 175 and 185.

As for claim 28, see Col. 3, lines 52-65.

As for claims 29-30, see Col. 4, lines 40-44.

As for claim 31, see Col. 4, lines 1-3.

As for claim 32, Wang discloses fibers such as 120, 140, 131, 133 for light transmission and communication.

Claims 3-5, 12-13, 15-16, and 23-26 lack an inventive step under PCT Article 33(3) as being obvious over Wang et al (6,069,686).

As for claims 3-5 12-13 and 15-16, the modifications of the Wang device to meet certain materials or fiber shapes are all well known, and it would have been obvious to make such modifications, as doing so would lead to no change in the functionality of the device.

As for claims 23 and 25-26, it would be obvious to have an isolator means such as a bellows in conjunction with a pressure test system, as using bellows in such systems is well known.

As for claim 24, the material in the gap can be a fluid (Col. 4, lines 56-65).

Claims 1-32 the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.